

## REMARKS

**Interview Summary:** Applicants thank the Examiner for the courtesy of a phone interview with the undersigned attorney on June 28, 2007, during which the current rejections were discussed. The Examiner stated that inserting the word “primarily” before “comprising” in claim 40, would overcome the 35 U.S.C. § 112 rejection. Independent claims 40 and 71 have been amended in accordance with the Examiner’s suggestion to clearly indicate that the hot aqueous liquid is maintained at a sufficiently high pressure to prevent the formation of water vapor.

### Rejections Under 35 U.S.C. § 112

Claims 40-78 stand rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement as being new matter. The present claims are supported by the specification and claims of the related patent US 6,854,809. In particular, claims 40-78 are supported by the following claims of US 6,854,809 (in parentheses): 40 (1), 41 (8), 42 (8), 43 (9), 44 (2), 45 (3), 46 (4), 47 (5), 48 (6), 49 (7), 50(10), 51 (11), 52 (12), 53 (13), 54 (14), 55 (17), 56 (18), 57 (19), 58 (20), 59 (21), 60 (22), 61 (23), 62 (24), 63 (25), 64 (26), 65 (27), 66 (28), 67 (29), 68 (30), 69 (31), 70 (33), 71 (1), 72 (9), 73 (2), 74 (4), 75 (6), 76 (17), 77 (18), and 78 (22). Additional language in claims 40 and 71 is supported by the following language in the specification: “nahcolite, an ore consisting primarily of sodium bicarbonate” (¶2) and “Nahcolite: An ore containing primarily sodium bicarbonate (bicarb) as the water soluble salt” (¶43). The Applicants request that the rejection be withdrawn.

Claims 40-78 stand rejected under 35 U.S.C. § 112 because the Examiner asserted that the specification does not reasonably provide enablement for recovery of sodium bicarbonate from any ore deposit comprising sodium bicarbonate. Claims 40 and 71 have been amended to require that the ore deposit primarily comprises the recited components. The Examiner indicated in the phone interview that this amendment would overcome this rejection. As noted in the application, nahcolite is primarily sodium bicarbonate. (¶¶2, 43) The

process described in the specification works by injecting hot aqueous liquid into a mining zone, where it dissolves sodium bicarbonate. The high temperature aqueous liquid fractures the shale. (¶28, lines 1-3). With the fracturing of the shale, the aqueous liquid can reach additional deposits to dissolve sodium bicarbonate. (¶28, lines 7-9). Thus, the specification is enabling for recovery from a mining zone comprising oil shale and an ore deposit including sodium bicarbonate, because the specification teaches that high temperature liquid will fracture the shale, and the sodium bicarbonate will dissolve in the aqueous liquid. Thus, claims 40-78 are enabled. Applicants request that the rejection be withdrawn.

### **Rejections Under 35 U.S.C. § 103**

Claims 40-78 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Rosar '790 in view of Prats. Applicants respectfully disagree. The Examiner argues that Rosar teaches a hot aqueous solution with a temperature of "about" 250°F. As discussed in the phone interview, Rosar teaches an injection liquor temperature of below about 250°F, preferably in the range of 85-235°F (col. 9, lines 15-18). The temperature of the solution exiting the cavity is necessarily lower, particularly in light of the fact that the cavity temperature is maintained at approximately 190°F (col. 9, line 14). In particular, Rosar teaches that the temperature of the solution withdrawn from the cavity is in the range of about 80°F to 200°F (col. 5, lines 17-18). Thus, the temperature range of the production solution disclosed in Rosar is significantly below the temperature required in amended claims 40 and 71 and Rosar provides no suggestion to increase the temperature of the production solution above that recited in claims 40 and 71.

As discussed in the phone interview with the Examiner, Prats does not teach solution mining with hot water of the requisite temperature. Prats teaches the use of low pressure steam, not liquid water. (See Prats at 1085 ). Amended claims 40 and 71 now clearly show that the hot aqueous liquid is maintained at a sufficiently high pressure to prevent the formation of water vapor. As noted

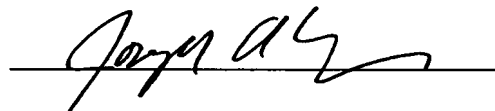
in the background section of the present application (¶5), injection of steam causes too much fracture of the oil shale formation and has too little water content to adequately dissolve the nahcolite. Prats discloses that the steam caused too much flow impairment for the process to work effectively. (Prats at 1085-1087). Thus, Prats, even in combination with Rosar, does not teach the injection of water or other hot aqueous liquid solution as claimed by Applicants in claims 40 and 71.

Claims 40-78 stand rejected under obviousness-type double patenting as unpatentable over claims 1-26 of U.S. 6,699,447 in view of Ramey '809. Claims 40-78 stand rejected under obviousness-type double patenting as unpatentable over claims 1-19 of 6,609,761. Terminal disclaimers are provided to overcome these rejections. Applicants request that the rejections be withdrawn.

### **SUMMARY**

Applicants believe the present application is now in condition for allowance. If the Examiner has any remaining issues, he is invited to contact the undersigned attorneys for the Applicants via telephone if such communication would expedite this application.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Joseph Yosick", is written over a horizontal line.

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